Mining Hazard Identification and Critical Control Management Training Course

18 – 22 April 2027
Muscat

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Training Center

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Ref: 1222_190275 **Date:** 18 – 22 April 2027 **Location:** Muscat **Fees:** 5700 Euro

Overview

Mining Hazard Identification and Critical Control Management Training Course is a one-week course for mine managers, engineers, HSE leaders, supervisors, geotechnical teams, processing personnel, and risk professionals who leave with a Mining Critical Control Assurance File. The course connects mining hazard identification, operational risk assessment, bow-tie analysis, material unwanted events, critical control management, verification, emergency readiness, and assurance across surface and underground operations. Agile Leaders Training Center presents mining risk control as a traceable operational discipline.

Who Should Attend

- Mine leadership functions responsible for operational risk decisions and control accountability
- Engineering functions responsible for ground stability, ventilation, plant integrity, and technical change
- HSE functions responsible for hazard analysis, risk registers, investigations, and assurance
- Supervisory functions responsible for work planning, field controls, and contractor interfaces
- Processing and tailings functions responsible for containment, monitoring, and trigger response
- Risk functions responsible for material-event reporting and control-performance oversight

The course assumes participants make or review mining risk decisions and leaves out introductory safety induction, jurisdiction-specific legal advice, and equipment-operation certification.

Departments and Industries

The course supports operational risk control across:

- Mine operations, technical services, HSE, and operational-risk departments
- Geotechnical, ventilation, blasting, maintenance, and mobile-equipment functions
- Mineral processing, tailings, water-management, and emergency-response teams
- Surface mining, underground mining, quarrying, and mineral-processing organizations
- Engineering contractors, equipment services, logistics, and infrastructure operators

Learning Objectives

By the end of this course, participants will be able to:

- Analyze mining hazards and material unwanted events
- Apply structured operational risk assessment methods
- Build bow-tie models and critical-control specifications
- Prioritize controls for major mining risk scenarios
- Evaluate critical-control verification evidence
- Create an integrated mining control-assurance file

Course Agenda

Day 1: Mining Risk Context and Hazard Logic

- ILO Mining Risk-Control Priority Framework
- Mining Hazard Taxonomy and Exposure Map
- Material Unwanted Event Definition Method
- Surface and Underground Interface Analysis
- Mining Risk Context and Accountability Matrix

Day 2: Hazard Identification and Risk Assessment

- Task-Based Mining Hazard Identification Method
- Process and Area Hazard Review Checklist
- Mining Risk Matrix and Evaluation Criteria
- Human and Contractor Interface Assessment
- Risk Register and Treatment-Priority Record

Day 3: Bow-Tie and Critical Control Design

- Bow-Tie Threat and Consequence Mapping
- Preventive and Mitigating Barrier Analysis
- Critical Control Selection Decision Test
- Critical Control Performance Requirement Sheet
- Control Ownership and Escalation Matrix

Day 4: Major Hazards and Control Verification

- Ground Control and Geotechnical Trigger Map
- Mobile Equipment Interaction Control Plan
- Blasting, Ventilation, and Fire Control Review
- Tailings Trigger Action Response Plan
- Critical Control Verification and Assurance Schedule

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Day 5: Mining Control Assurance Practice

- Exercise: Diagnose a Material Unwanted Event
- Exercise: Build a Mining Bow-Tie Model
- Exercise: Test Critical Control Performance
- Exercise: Evaluate Emergency and Change Controls
- Capstone Exercise: Mining Critical Control Assurance File

Practical Exercises

The course uses suggested activities to practice mining risk decisions:

- Suggested activity: identify hazards and material unwanted events for an underground development area
- Suggested activity: develop a bow-tie and critical-control set for mobile equipment interaction
- Suggested activity: test verification evidence for ground control, blasting, and ventilation controls
- Suggested activity: present a tailings trigger response and control-assurance decision

FAQs

Who does mining hazard identification training suit, and what does it assume?

Mining hazard identification training suits experienced operations, engineering, HSE, supervision, processing, geotechnical, and risk functions and assumes responsibility for mining hazards, controls, work planning, or assurance decisions.

How does critical control management differ from general mining safety training?

Critical control management concentrates attention on controls essential to preventing or mitigating material unwanted events, with defined performance requirements, ownership, verification, escalation, and improvement rather than broad safety awareness.

What makes a mining risk control critical?

A mining risk control is critical when its absence or failure would materially increase the likelihood or consequence of a material unwanted event and therefore requires explicit performance requirements and regular verification.

How is bow-tie analysis used in mining hazard management?

Bow-tie analysis connects a material unwanted event with its threats, consequences, preventive barriers, mitigating barriers, degradation factors, and supporting controls so teams can expose gaps and assign assurance work.

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What should critical control verification confirm?

Critical control verification should confirm that the control is present, functional, effective under operating conditions, supported by evidence, owned by an accountable role, and escalated when performance falls outside defined requirements.

Conclusion

Participants take back a Mining Critical Control Assurance File containing a hazard map, material-event register, risk assessment, bow-tie models, control specifications, ownership matrix, trigger plan, verification schedule, and assurance record. The file turns risk discussion into observable control requirements and evidence. It supports field decisions, escalation, emergency readiness, and continual control improvement.